

REMARKS

This Amendment is in response to the Office Action mailed December 20, 2001. In the Office Action, claims 5, 9, 14-15, 17 and 20 were rejected under 35 U.S.C. §102(b) and claims 6-8, 10-13, 16, 18 and 19 were rejected under 35 U.S.C. §103(a). Applicants respectfully traverse the rejection.

I. REJECTION UNDER 35 U.S.C. § 102(b)

Claims 5, 9, 14-15, 17 and 20 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,721,286 issued to Lauf et al. (Lauf). As the Examiner is aware, in order to anticipate a claim, Lauf must teach every element of the claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." See Verdegaal Bros. v. Union Oil of California, 814 F2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Applicant respectfully disagrees with the outstanding rejection as applied to both independent claims 5 and 9 because Lauf does not teach each and every limitation set forth therein.

For instance, Lauf does not disclose "a method for assembling an integrated circuit package 36, comprising: applying an epoxy 11 to an integrated circuit; placing a thermal element adjacent to the epoxy 11; and, curing the epoxy 11 with energy at a microwave frequency 10." [See page 2 of the Office Action]. The reference numeral "11", which is not located in any drawings of Lauf, is used to identify the method of curing polymers, not to identify an epoxy. If the Examiner disagrees, Applicants respectfully request the Examiner to point out the exact column and line numbers where Lauf discloses the following limitations in order to facilitate prosecution of the pending patent application: (1) applying

an epoxy to an integrated circuit; (2) placing a thermal element adjacent to the epoxy; and (3) curing the epoxy with energy at a microwave frequency.

It is Applicants' position that Lauf fails to describe or even suggest the curing of the *epoxy with energy at a microwave frequency where the epoxy is applied to an integrated circuit* [See claims 5 and 9, lines 2 & 4]. Such curing of the epoxy is conducted by selecting a microwave frequency that will not damage the integrated circuit as set forth in claims 17 and 20, which are dependent on independent claims 5 and 9, respectively. Moreover, there is no discussion of placement of a thermal element *adjacent to the epoxy* as claimed as well. [Emphasis added].

In light of the foregoing, withdrawal of the § 102(b) rejection is respectfully rejected.

II. REJECTION UNDER 35 U.S.C. § 103(a)

Claims 6-8, 10-13, 16, 18 and 19 were rejected under 35 U.S.C. §103(a) as being unpatentable over Lauf in view of U.S. Patent No. 6,146,921 issued to Barrow. Applicant respectfully disagrees with the outstanding rejection because Lauf does not suggest the limitations already set forth independent claims 5 and 9 for the reasons described above. Applicant respectfully request withdrawal of the § 103(a) rejection as well.

VERSION WITH MARKINGS TO SHOW CHANGES MADE

1 5. A method for assembling an integrated circuit package, comprising:
2 applying an epoxy to an integrated circuit;
3 placing a thermal element adjacent to the epoxy; and,
4 curing the epoxy with energy at a microwave frequency.

1 6. (Amended) The method of claim 5, further comprising [the step of] mounting
2 the integrated circuit to a substrate.

1 7. (Amended) The method of claim 6, further comprising [the step of] attaching
2 a solder ball to the substrate.

1 8. (Amended) The method of claim 5, further comprising [the step of] molding
2 an encapsulant onto the substrate and the integrated circuit.

1 9. A method for assembling an integrated circuit package, comprising:
2 applying an epoxy to a thermal element;
3 placing the epoxy and the thermal element onto an integrated circuit; and,
4 curing the epoxy with energy at a microwave frequency.

1 10. (Amended) The method of claim 9, further comprising mounting the
2 integrated circuit to a substrate.

1 11. (Amended) The method of claim 10, further comprising attaching a solder ball
2 to the substrate.

1 12. (Amended) The method of claim 9, further comprising molding an
2 encapsulant onto the substrate and the integrated circuit.

1 13. The method of claim 5, wherein said thermal element is a heat spreader.

1 14. The method of claim 5, wherein prior to applying said epoxy, the method
2 further comprises providing a thermally conductive filler to a resin to form said epoxy.

1 15. The method of claim 14, wherein said thermally conductive filler includes
2 carbon particles.

1 16. The method of claim 5, wherein said placing of said thermal element includes
2 attaching said thermal element to said epoxy.

1 17. The method of claim 5, wherein said curing of the epoxy includes
2 selecting the microwave frequency to cure the epoxy without damaging the integrated
3 circuit or heating other components within the integrated circuit package; and
4 generating energy at the microwave frequency by a microwave generator directed
5 toward the epoxy.

1 18. The method of claim 9, wherein prior to applying said epoxy to the thermal
2 element, the method further comprises providing a thermally conductive filler to a resin to
3 form said epoxy.

1 19. The method of claim 10 further comprising baking the substrate before curing
2 the epoxy.

1 20. The method of claim 9, wherein said curing of the epoxy includes
2 selecting the microwave frequency to cure the epoxy without damaging the integrated
3 circuit or heating other components within the integrated circuit package; and
4 generating energy at the microwave frequency by a microwave generator directed
5 toward the epoxy.

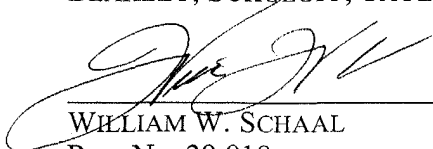
CONCLUSION

In view of the amendments and remarks made above, it is respectfully submitted that all pending claims are in condition for allowance, and such action is respectfully solicited.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: January 8, 2002

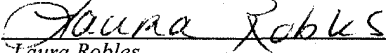


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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on: January 8, 2002.



Laura Robles
Date